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Except insofar as *theory* is concerned, philosophers tend to place evolution at an exclusively scientific address. In practice this means they divorce historical significances of evolution from their particular theoretical concerns - from axiomatic formulations derived from population genetics or molecular biology, for example - and subsequently ignore them. The overall effect of standard practice is not only to overlook the vast temporal span and diversity of life preceding the immediate human present, but to disregard the more intimately related science of paleoanthropology. Where, for example, do we read of primordial language, ancestral hominid tool-making, burial practices, or cave paintings in the context of philosophical investigations of human language, cognition, or art? Even in the philosophy of science, philosophers uniformly bypass paleoanthropology, most often in favor of either a neurophysiology whose centerfold features the brain and its circuitry, or an anorexic biology whose living flesh is so emaciated as to be virtually absent. Standard philosophic practice is well exemplified by Michael Ruse in his *The Philosophy of Biology*, a book devoted to showing that the theory of evolution is not dissimilar from theories in the physical sciences, and that the single discipline of population genetics (reducible ultimately to molecular biology) stands at the explanatory center of evolutionary theory. Ruse mentions the historical side of evolution but only to argue away its centrality to evolutionary theory. Linking paleontology to what is dead and long gone - to bare fossils and little more - he in fact calls evolution with its historical aspect intact an "old concept", and refers to "the supposedly *historical* nature of organic phenomena".[1] For Ruse, as for many philosophers,[2] molecular genetics

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alone offers a bona fide philosophical basis for examining and understanding evolutionary theory.

Standard philosophic practice is equally well exemplified by the ongoing, complex "unit of selection" controversy.[3] The question of the level(s) at which selection acts and of whether there is a "true unit of selection"[4] is not without interest - either to biologists or to philosophers. Neither was the question of fitness which occupied centerstage several years back.[5] However, when such questions are taken as paradigmatic of *the* type of question of proper concern to philosophers of biology, then not only are concerns about concrete historical processes of evolution, including *human* evolution, nowhere in evidence, but the total absence of these historical concerns from philosophical discussion strongly suggests that they are not properly the province of philosophers at all but only of biologists. In other words, with respect to actual evolutionary processes that have taken place, the attitude of the philosopher of biology is, "there is no philosophy of biology to be done there". Even in philosophical contexts in which concerns with historical significances of evolution appear to be central, there is not uncommonly a noticeable gap. The Philosophy of Biology in Historical and Cultural Contexts course that was offered through the National Endowment for the Humanities to philosophers in the summer of 1989 is a case in point. Although ample attention was called to Darwin, the "Darwinian tradition", and "Darwinism" in the two hundred and twenty-five word course description, the historical side of evolution - the side that Darwin was at pains to explain - was nowhere alluded to. The irony was compounded by the fact that, though the intent was in part to develop "a new and humanistically richer philosophy of science", paleoanthropology was nowhere mentioned.

A further exemplification of standard philosophic practice centers on philosophers' interest in nonhuman animals, particularly but not exclusively in the context of philosophy of mind.[6] The intent in these philosophical enterprises is generally to shed light on the relationship between human and nonhuman intelligence. For example, the intent has recently been "to help cognitive ethologists to interpret their findings",[7] or to aid cognitively-oriented scientists by supplying them "a descriptive language and method that are neither anachronistically bound by behaviorist scruples nor prematurely committed to *particular* "information-processing models".[8] Standard philosophic practice is apparent in such enterprises when, in the drawing of comparisons or implications, philosophers fail to take evolution, particularly our own human evolution, into account. The result is a failure to realize that short of divine intervention, human rationality and human language are themselves products of evolution, and not in the sense of novel neural brain circuitry gradually (much less suddenly) appearing such that communally understood words began sprouting from the mouths of a few no doubt surprised-because-heretofore-verbally-mute hominids, but in the sense of actual living creatures *inventing* new

modes of behavior. Jonathan Bennett, in his 1987 Presidential Address to the Eastern Division American Philosophical Association, noticeably ignores human evolution in just this way. To begin with, he states that his aim is to specify "[the] main differences there are between *Homo sapiens* and other known terrestrial species, or (for short) between man and beast". He elaborates this aim by saying that he thinks we humans all intuit the same difference - "I think we have the same *picture* of the difference, the same *sense* of what it is"[9] - and that his purpose is to try to "parlay" that picture or intuition into "an agreed description".[10] By way of further elaboration, he says that the difference he is interested in descriptively pinpointing is a difference in kind and not in degree, and this on the basis of what we already think is there, that is, on the basis of "what we already know about us and about them". The problem of course is what "we" *do not* know about us and about them. As is clear from what has been said thus far of standard philosophic practice, Bennett ignores what philosophers generally tend to ignore; that is, he tends to discount as relevant knowledge the actual historical process of evolution and with it, our own hominid history, the study of our own human evolutionary past.[11] The import of this neglect is sizable. One aspect of it will become readily apparent in what follows. Suffice to say here that without this historical dimension, those philosophical studies that aim at discovering relationships between human and nonhuman intelligence can never be anything more than a comparison between present-day humans and present-day chimpanzees (or gorillas, or orang-utans, or baboons, or lemurs, or langurs, or vervet monkeys, and so on - or pigeons and crows,[12] for that matter). They will never tell us anything in an *evolutionary*, i.e., substantively biological - including ethological - sense about "what makes us special".[13] They reduce simply to philosophical justifications for cherishing ourselves.

Standard philosophic practice is not uncommonly queer in an etymological sense, in the sense that what evolves are precisely organic wholes, and in the sense that understanding humanness was at least in the beginning what constituted the pursuit of philosophy. The counters identified in a molecular biology and/or formulated in an axiomatic system, for example, are not the stuff of *evolution* - the actual living process in virtue of which we are here today. That process is defined by all those sensing, moving creatures who found and made their niche in the world in myriad ways over eons of time - some of them successfully, many quite unsuccessfully - and it includes those creatures who constitute the subject matter of paleoanthropology and who, as relatives, should be dear to our human hearts. A concern with molecular regularities and with explanation - with evolutionary theory *qua theory* - need not devalue a concern with that historical process or the creatures who define it - with evolutionary theory *qua evolutionary* theory. More than this, the concern need not saw off the branches that support it. In default of an historical dimension, there could be other theories in biology - theories of spontaneous generation, of

animal spirits, of a sentiment intérieur, and other formulations in the conceptual style of a pre-Darwinian biology, but there would be no theory of *evolution*.[14] Furthermore, as emphasized, to ignore the historical aspects of evolution is to omit understandings of our ancestral kinfolk, thus to disregard significant dimensions of our own human evolution. Especially in light of their considerable accomplishments, our kinfolk matter. As with our own families, our biological Family tells us something about ourselves. When we examine our ancestral past, we learn something about who we are. Such an examination is what in a truly philosophical sense Darwinian evolutionary theory was originally all about.

Darwin wrote three major books on evolution: *The Origin of Species, The Descent of Man and Selection in Relation to Sex*, and *The Expression of the Emotions in Man and Animals*.[15] In the first of these consecutive formulations, Darwin considers physical characters and behavior; in the second he considers mental powers and moral qualities, and then proceeds to a study of sexual behavior; in the third he turns his attention to emotions. It is clear from these successive writings that Darwin is both an organic and evolutionary wholist. His initial concern with distinct aspects of animate form notwithstanding, he clearly regards animals not as piecemeal assemblages nor as reflex machines on the order of "protoplasmic record changers",[16] but as, in eminent British biologist J.S. Haldane's phrase, "persistent wholes";[17] and he furthermore regards the attributes and capacities of *all* creatures to have evolved. In consequence, evolutionary continuities pertain not simply to atomistic parts or to physical bodies but to animals as living wholes. By the same measure, they pertain not to some creatures but to all creatures: evolutionary continuities are evident throughout the animal kingdom, including humans, and they are describable in physical, mental, moral, sexual, and emotional terms. Darwin's three books attest incontrovertibly to this conception.

Darwin's wholistic conception of evolutionary continuities is never mentioned in 20th century Western scientific or philosophic circles. It has never been openly challenged. It has never been methodically rebutted. It has simply been ignored. By 20th century Western standards, only *The Origin of Species* and the second half of *The Descent - Selection in Relation to Sex* - count as evolutionary theory. The rest is silence, but not necessarily because one knows not of what one might speak. On the contrary, an affirmation of evolutionary continuities beyond the merely physical is an obvious dimension of, for example, NASA programs utilizing nonhuman animals; medical and psychological studies of behavior in which nonhuman animals figure as subjects; language-learning programs featuring especially chimpanzees, but also including gorillas, orang-utans, and parrots; and more. The pressing question then is, why is there a selective reading of Darwin? Since *never explicitly discredited*, why is his organic and evolutionary wholism not taken seriously?

Behaviorism and logical positivism might go a long way in answering the question, but they are far from providing the whole answer. With respect to the neglect of "the descent of man", the whole answer would likely take in cultural relativism and the not unrelated structuralist emphasis on synchrony over diachrony since both doctrines, in eschewing in one way and another the notion of 'getting back', would see no philosophical significance in the descent itself and/or no cultural relevance of the descent to modern humans. Each of these avenues of response would be interesting to consider. The focus here, however, will be on a quite different answer, namely, anthropocentrism. Because it has not been previously exposed, because it sheds a basic and particularly penetrating light on the selective reading of Darwin and the decline of his organic and evolutionary wholism, and because, in turn, it accords "man" *carte blanche* powers over "beast" and thus ultimately has far-reaching ethical implications, the practice of anthropocentrism is of considerable interest and import. Detailed consideration will show that the central issue is not fundamentally that of attributing human characteristics to nonhuman animals, i.e., anthropomorphism, but of assuming humans as the center of the animate world such that, for example, any assessment of nonhuman mental powers must take as its standard of measurement a human mind.

The charge of anthropomorphism is normally a pejorative judgment rendered upon a person who purportedly interprets the behavior of nonhuman creatures in ways which wrongly humanize the behavior and which in turn credit the creatures with far more in the way of intelligence than the creatures actually deserve. Morgan's canon is rigorously adhered to by scientists as a bulwark against anthropomorphism. Morgan's canon dictates that no nonhuman animal behavior may be interpreted at a higher level if it can be explained at a lower level.[18] The canon is often equated to parsimony, though Occam's notion of parsimony was tied to maintaining a spartan explanatory ontology, not to the formulation of what must be regarded self-serving explanatory protocols. What the charge of anthropocentrism pinpoints and calls into critical question is precisely the customary practice in virtue of which the charge of anthropomorphism is purportedly avoided in the first place. Most simply stated, it is the charge that *reading humanness out is an anthropocentric act*. By such an act, nonhuman creaturely life is interpreted in ways that consistently exalt the measure of humanness: humans become special creations. Man is indeed the measure of all things in such a world, *man* understood here not as independently-perceiving individuals but as self-privileging beings apportioning sub-mental credit from on high to the whole of nonhuman animate life.[19] Indeed, the act of reading out is an aggrandizing gesture by which the whole human species is plucked out - saved as it were - from its place in the evolutionary mainstream of life.[20] It is thus clear why to depreciate nonhuman animal behavior is a denial of evolutionary wholism. The same

strict interpretive rule that applies to nonhuman animals - Morgan's canon - does not apply to humans. In consequence, humans can be as generous and self-flattering as they please toward themselves. They can declare, for example, that without exception all humans have an intelligence that in every instance is uniquely superior to that of nonhuman animals. Thus whatever the navigational abilities, tool-using/tool-making skills, distinctive cultural practices,[21] and other demonstrable modes of nonhuman animal intelligence might be, they are necessarily of a lower order, an order that is *discontinuous with* the navigational abilities, tool-using/tool-making skills, distinctive cultural practices, and so on, of modern humans. The charge of anthropocentrism calls into question the practice of protecting and privileging humankind in this way. It affirms the fact that it is as anthropocentric to deal humans all the cards as it is to deal nonhuman animals too many aces.

Clearly, so long as anthropomorphism is the perenially favored scapegoat, anthropocentrism goes unrecognized and unacknowledged as its parent form; anthropomorphism and its inverse are both forms of anthropocentrism. Anthropocentrism is thus primary and the charge of anthropocentrism can actually be made from either of two directions. Consider, for example, the conveniently ignored but seminal collateral question raised by the quest for objectivity and the linking of anthropomorphism with a lack of objectivity. In a recent article in *The Chronicle of Higher Education* titled "Scientists rethink anthropomorphism", writer Kim A. McDonald begins by describing the linkage: "Long considered taboo among researchers studying animals, anthropomorphism violates a central tenet of science: that researchers should strive to be totally objective and dispassionate observers of nature. As a result, scientists who suggest that animals possess intentions, emotions, or other qualities assumed to be *uniquely* human are often viewed by colleagues as careless, gullible, or even irresponsible... So despised is the practice that animal researchers can discredit others in their field by simply labeling their work anthropomorphic" (italics added).[22] McDonald goes on to say that animal researchers such as Marc Bekoff are now vindicating the practice of anthropomorphism on the grounds of its being "a valuable scientific tool".[23] The conveniently ignored collateral question concerns the exoneration of *reverse* anthromorphism. In particular, why are anthropocentrists who privilege humans by reading humanness *out* not similarly scorified by their failure to be "totally objective and dispassionate observers of nature"? Surely human arrogance is a liability, and not "a valuable scientific tool"? As a further example, consider that humans are merely one among ten million species and that, their numerical insignificance notwithstanding, they readily pronounce judgments on all remaining 9,999,999 species, and this even though, philosophically speaking, they have not been able to show convincingly much less conclusively that they are not dreaming or a part of someone else's

dream.[24] Clearly, anthropocentrism has a much larger compass than commonly recognized, and an unrestrained one at that.

In the most basic sense, the dual liabilities of anthropocentrism should lead us to ponder seriously and at length the inescapability of our human perspective. But they should lead us at the same time to an immediate acknowledgment of the necessarily limited range of our understandings and of our correlative need to temper proclivities toward human arrogance and in turn, monitor critically our judgments of nonhuman creatures accordingly. Most specifically, they should lead us to the realization that, particularly with respect to judging the intelligence of nonhuman animals, it is far more reasonable - and in turn morally far wiser - to err on the side of generosity than on the side of miserliness. Evolutionary theory, with its emphasis on "persistent wholes", informs us of this reasonability and instructs us toward just such judgments. It implicitly demonstrates to us that organic wholism, like evolutionary wholism, falls by the wayside with reverse anthropomorphism. It implicitly attests that *reading humanness out* is substantively far more pernicious than reading humanness in. With reverse anthropomorphism, intelligence and cognitive acumen - in broad terms, all capacities customarily associated with *mind* - are divorced from the body and regarded special creations along with their unique human possessors.[25] In short, the belief implicit in this form of anthropocentrism is that unlike the human body the human mind never evolved. Presumably it arose *sui generis*, *deus ex machina*, or by interplanetary intervention - perhaps we are the artificial intelligence of creatures on Alpha Centauri. It is instructive to call attention to an apparently ill-recognized fact and curious practice connected with the belief. Philosophers - and other non-science people as well - who bring nonhuman animals into the human picture typically use them in a way quite unlike evolutionary scientists.[26] Comparisons of humans to extant nonhumans, particularly primates, are made by primatologists, paleoanthropologists, and other evolutionary scientists *not* on behalf of specifying immediate relationships but far distant ones: the behavior of extant nonhuman primates serves as an analogical measuring stick for reckoning *ancestral* hominid behavior. This way of using data gathered on nonhuman animals, or this use of "the comparative method" (as evolutionary scientists term it), is quite different from the way in which philosophers are prone to using it, namely, either to substantiate or to deny a resemblance between 'us and them', 'here and now'. In short, unlike evolutionary scientists, philosophers do not consider primate or other nonhuman animal data in *evolutionary* perspective.[27] It is because of this that the much-prized treasure, human uniqueness, can be so effortlessly secured: so long as the method is misunderstood, the evolutionary significance of nonhuman animal behavioral studies is missed; so long as the evolutionary significance of these studies is missed, our own evolution is ignored; so long as

our own evolution is ignored, our kinfolk are ignored, and so long as our kinfolk are ignored, a miserly anthropocentrism is easily installed and practiced with the result that an organic and evolutionary wholism continually gives ground to special creation.

It is with great interest one reads in Hume a lengthy footnote explaining both why humans differ among themselves with respect to reasoning powers, and why humans differ from nonhumans with respect to the same capacities. Hume's explanation is in principle strikingly similar to Darwin's explanation of differing capacities among individual creatures with respect to a differential mortality and reproduction, so much so that Hume's explanation appears to be not simply prescient but perhaps even a direct influence on Darwin. That Darwin read Hume has been noted by historians of science.[28] But historians have not observed the remarkable correspondence between Darwin's and Hume's accounts of differing capacities. For both Darwin and Hume, the latter were a matter of individual, native dispositions, whether human or nonhuman. Hume writes of individual humans differing "in attention and memory and observation", for example, in the ability "to carry on a chain of consequences", and in "the forming of general maxims from particular observation".[29] The same native differential abilities that explain "the great difference" among humans in their various capacities to reason, Hume states, explain the great difference in various reasoning capacities between humans and nonhumans. For his part, Darwin first of all affirms that "if no organic being excepting man had possessed any mental power, or if his powers had been of a wholly different nature from those of the lower animals, then we should never have been able to convince ourselves that our high faculties had been gradually developed. But it can be clearly shewn that there is no fundamental difference of this kind".[30] He then proceeds to give evidence showing that "man and the higher animals, especially the Primates, have the same senses, intuitions and sensations - similar passions, affections, and emotions... they feel wonder and curiosity; they possess the same faculties of imitation, attention, memory, imagination, and reason, though in very different degrees".[31] In sum, for Darwin as for Hume, just as there is a difference in degree and not in kind in capacities among animals of the same species, so there is a difference in degree and not in kind between different species, i.e., between humans and nonhumans. In consequence, for neither Hume nor Darwin are there Rubicons to be crossed in accounting for human 'minds'. Put in evolutionary perspective, this means not only that "mental powers" (to use Darwin's phrase) evolved, but that they evolved as a dimension of animate life.

Careful readings of Darwin's three classic works on evolution reveal many times over an organic and evolutionary wholism in opposition to the idea of special creation. Special creation and the practice of anthropocentrism that in part upholds it are clearly inconsistent with evolutionary theory. Present-day

philosophy of biology thus has another and quite different task from the one it presently addresses: to expose the inconsistency in all its guises and in consequence show how evolution is to be taken seriously, and *can* be taken seriously in the very doing of philosophy. The task in fact has far-reaching consequences for philosophy, beginning with a Cartesian metaphysics and ending with a justifiable human ethics insofar as wholistic themes support evolutionary continuities and evolutionary continuities raise certain questions both about the evolution of mind and about the human treatment of nonhuman animals. The task in this longer view might more rightly be designated an *intra*-disciplinary one in that it necessitates a broad philosophical perspective. It can be exemplified with respect to a Cartesian metaphysics, specifically the classic mind/body dichotomy, by two seminal question: can bodies evolve in the absence of mental powers?; and correlatively, can mental powers evolve in the absence of bodies? Suggestions follow as to the kind of evidence to be considered if just and sound answers are to be had.

Of prime importance with respect to the first question are situations in which a creature is engaged in some constructional activity, constructional in the sense of the creature's devising from moment to moment in the light of a particular and immediate play of events. Thus, beavers building dams or lionesses hunting zebras - in fact hunting and hunted animals generally - must take into account the particular moment by moment situation as it develops. There are no tapes on which all the right moves are recorded such that no matter what the exigency, a neurological program exists. Constructional activity clearly calls into serious question the idea that bodies have evolved or can evolve in the absence of mental powers.[32]

What must furthermore be considered is the fact that animals are from time to time initiating agents. They begin practicing new strategies, for example, or they implement new behaviors such that an entire group of creatures begins behaving in new ways. Not only is there now classic evidence of initiating agents in primate groups studied by Japanese primatologists,[33] but many of our own kinfolk were initiating agents. Consistent bipedality was a new practice; tool-making was a new practice; burying the dead was a new practice; speaking was a new practice; counting was a new practice; cave-painting was a new practice. Present-day humans can look back as far as three and a half million years and find new practices. All of the practices attest to new concepts, as detailed research has shown.[34] All of the practices were initiated by hominids. The point of signal importance is that *while all humans are hominids, not all hominids are humans.* As represented by the subspecies *Homo sapiens sapiens*, humans arose only some 40,000 years ago.[35] On the basis of paleoanthropological evidence to date, we can thus conclude that with one exception, *the above-mentioned practices were initiated by nonhuman primates.* Recognition of the evidence thus mandates a recognition of mental powers outside an elitist human circle and provides powerful grounds

for affirming that nonhuman living bodies, simply on the basis of their nonhumanness, cannot reasonably be regarded as lacking mental powers.

Evidence of animals as initiating agents is equally significant to a just and credible answer to the corollary question, can mental powers evolve in the absence of bodies? Short of a body, one can only wonder where the felt motivations, felt curiosities, and active explorations might be that sustain any thoughtful endeavor such as burying an individual, chipping away at one stone with another, or hammering away at something to see what is inside.[36] It is not a question of *brains* - not only because it is "persistent wholes", not brains, that evolve - but because it is not brains that are motivated, curious, or explorative; it is creatures who are. The nonsensical, even comic, consequences of thinking otherwise are well exemplified by the biologist who affirmed that "nonhuman primates have brains capable of cooperative hunting",[37] as if when summoned by hunger, it is brains that roll forth in concert to do battle on the savannah. From a Darwinian perspective, it is difficult to deny that the evolution of mental powers is tied to living bodies engaged in the real world of procuring food, escaping danger, finding new resources, exploring a new terrain, making choices in the pursuit of a mate, deterring rivals - in short, engaged in the demanding, challenging, complex, practical business of making a living.

A just assessment of whether bodies can evolve in the absence of mental powers would also have to take into account nonhuman animal behaviors that fall outside formally devised protocols. Two primate psychologists interested in tactically deceptive behavior have collected "anecdotal" data from a wide range of primatologists whose formal writings omit reference to any such data. By way of example, one of the contributing primatologists tells of a female gorilla who, in the lead with four others behind her in a relatively straight line, was travelling between feeding sites along a narrow trail. In the words of the primatologist, "S [the female] looks up into *Hypericum* tree and spies a nearly obscured clump of *Loranthus* vine. Without looking at those behind her, she sits down by the side of the trail and begins to self-groom intently until the others have passed her and all are out of sight... Only then did S stop 'self-grooming' to rapidly climb into the tree, break off the vine clump and descend with it to the trail to hastily feed on it before running to catch up with the group".[38] The utilization of such anecdotal data within animal behavioral studies is in general sanctioned only by cognitively-oriented scientists and philosophers;[39] it is not sanctioned by behaviorists even though to omit anecdotal data is to leave gaps in the record, thus to be less than objective by giving only a partial report - indeed, to give a "subjectively-biased" account of animal behavior. By comparison, no physicist or astronomer who found an anomaly would ignore it on the basis of its being "anecdotal". Neither would students of human behavior overlook such a ploy as that of the female gorilla in their investigations and reported observations of human actions. Indeed, in the human instance, the

ploy would undoubtedly be classified as "ingenious". One need only recall Oliver North's cover-up to find what constituted for many Americans just such an "ingenious" example of tactical deception.

However brief the above suggestions, they show that evolutionary biology has much to contribute to the philosophical discussion and resolution of certain metaphysical questions and intimately related ethical issues. In broader terms, they show that Darwin's twin themes of organic and evolutionary wholism clearly challenge us, both to expose inconsistencies in the evolutionary records we keep and to keep those cleared-up records in sight as we ourselves do philosophy. To be so challenged is of course to acknowledge being part of a historical process infinitely larger than ourselves. The acknowledgment of that history, like the acknowledgment of the earth's revolution around the sun or the acknowledgment of our own death - the acknowledgment of any natural spatio-temporal system of change - is in fact not only rational, but perhaps the necessary first step in understanding what it means to be rational, not to say in living up to the star billing we give ourselves as rational animals. In her interpretive essay on Aristotle's concept of *pneuma* and his concept of soul and body in *De Motu Animalium*, Martha Nussbaum was led to remark on the fact that "an essential part of [Aristotle's] search for the best account of animal physiology was an examination of the goal-directed motions of the heavenly spheres". In other words, for Aristotle, animal motion and heavenly motion were essentially related and were to be studied and understood together. Nussbaum's conclusion is that Aristotle's view affirmed that "no being can be exhaustively studied without an account of his placement in the whole of nature" - a 2,300 year-old view that coincides significantly with Darwin's organic and evolutionary wholism.[40]

To achieve that view, what we perhaps need most basically, that is, to begin with, is not a different conception of nonhuman animals - a different conception that is as vital as Cavalieri and Singer have shown it to be[41] - but a different conception of ourselves. Indeed, a different conception of ourselves is primary in the sense that *to conceive ourselves as primates* leads us in both directions at once: to an acknowledgement of our own species-specific historical placement in "the whole of nature" and at the same time to an acknowledgment of those readily demonstrable ties that so intimately bind *we primates* in a common creaturehood.[42] With this re-conceptualized evolutionary view of ourselves, our spontaneous disposition to read humanness *in* - anthropomorphism - is precisely what we should expect to find in ourselves. Given our common genealogical heritage, we primates are cut of the same cloth. To trace out the ties that bind us in a common creaturehood does not mean that distinctions - our species-specific differences - are ignored or effaced. It means only that primate patterns of thinking, feeling, and behaving, being in fundamental ways of an evolutionary piece, are brought to light and given their due.[43]

Notes

[1] Michael Ruse, *The Philosophy of Biology* (Hutchinson University Library, London, 1973), pp. 213, 211, respectively.
[2] Cf. Alexander Rosenberg, *The Structure of Biological Science* (Cambridge University Press, New York, 1985).
[3] See, for example, Kim Sterelny and Philip Kitcher, "The return of the gene", *Journal of Philosophy* 85/7 (July 1988) pp. 339-361; Elliott Sober, "The poverty of pluralism: a reply to Sterelny and Kitcher", *Journal of Philosophy* 87/3 (March 1990) pp. 151-158; Philip Kitcher, Kim Sterelny, and C. Kenneth Waters, "The illusory riches of Sober's monism", *Journal of Philosophy* 87/3 (March 1990) pp. 158-161; Timothy Shanahan, "Evolution, phenotypic selection, and the units of selection", *Philosophy of Science* 57 (1990) pp. 210-225.
[4] Kitcher, Sterelny, and Waters, "Illusory riches", p. 159.
[5] See, for example, Alexander Rosenberg, "Fitness", *Journal of Philosophy* 80/8 (August 1983) pp. 457-473; Elliott Sober, "Fact, fiction, and fitness", *Journal of Philosophy* 80/7 (July 1984) pp. 372-383.
[6] Indeed, as this essay will go on to suggest, the repercussions of this particular mode of standard philosophic practice do not reverberate exclusively within the domain of philosophy of mind, but affect a number of subdisciplines including both ethics and metaphysics.
[7] Jonathan Bennett, "Thoughtful brutes", Presidential Address, Eastern Division American Philosophical Association, *Proceedings and Addresses of the APA* 62/1 (September 1988), p. 197.
[8] Daniel Dennett, "Intentional systems in cognitive ethology: the 'panglossian paradigm' defended", *Behavioral and Brain Sciences* 6 (1983), p. 343.
[9] "Thoughtful brutes", p. 197.
[10] *Ibid.*
[11] Daniel Dennett ignores the actual historical process of evolution to the extent that he takes *present-day human adult* intellectual abilities for granted - that is, he gives no indication of thinking of those abilities as having evolved - and that he aligns preverbal human children's intellectual abilities with those of nonhuman (presumably adult) animals. For example, although he points out that humans function at a lower intentional level than they might think, that like "vervet monkeys (and chimps and dolphins, and all other higher nonhuman animals) [humans] exhibit mixed and confusing symptoms of higher-order intentionality" - "[they are not] unproblematic exemplars of third- or fourth- or fifth-order intentional systems" ("Intentional systems", p. 349) - he does not put the point in evolutionary perspective (or even intimate that it might have such a perspective). Rather, he puts the comparison in the perspective of another comparison: that between small children and monkeys. He states, "I expect the results of the effort at intentional interpretations of monkeys, like the results of intentional interpretations of small children, to be riddled with the sorts of gaps and foggy places that are inevitable in the interpretation of systems that are, after all, only imperfectly rational" (*Ibid.*). A later commentary fleshes out the reason for an "imperfect rationality". In the context of discussing how we are to interpret "animal messages", Dennett states his disagreement with Wittgenstein - that "if a lion could talk, we could not understand him". But he also goes on to say that "I do think we'd find the lion had much less to say about its life than we could already say about it from our own observation. Compare the question: What is

it like to be a human infant? My killjoy answer would be that it isn't like very much. How do I know? I don't "know", of course, but my even more killjoy answer is that on my view of consciousness, it arises when there is work for it to do, and the preeminent work of consciousness is dependent on sophisticated language-using activities" (*Ibid.*, p. 384). Clearly, an imperfect rationality is tied to a lesser consciousness, and a lesser consciousness to the lack of "sophisticated language-using activities". Forms of "imperfect rationality", however, were capable of fashioning stone tools and conceiving of death. There is no way of knowing conclusively of course just when verbal language evolved in the course of hominid evolution. On the other hand, there is a way of knowing when such practices as stone tool-making and burying the dead began, and these activities, as has been shown elsewhere (see Note 34), are not dependent on sophisticated language-using activities; they are rooted in the body. The very concept of a tool, like the complex concept of death, is a matter of corporeal matters of fact, thus of corporeal concepts. Taking evolution seriously holds the possibility of enlightening us about things we do not know.

[12] For an incisive and at the same time thoroughly engaging commentary on the axiology implicit in academic nonhuman animal research studies, see (former primatologist) Nicholas S. Thompson, "My descent from the monkey", in P.P.G. Bateson and Peter H. Klopfer (eds), *Perspectives in Ethology* (Plenum Press, New York, 1976), vol. 2, pp. 221-230.

[13] Bennett, "Thoughtful brutes", p. 197.

[14] For a detailed discussion of how the concept of evolution was a uniquely Darwinian concept, see Maxine Sheets-Johnstone, "Why Lamarck did not discover the principle of natural selection", *Journal of the History of Biology* 15 (1982) pp. 443-465.

[15] The latter book was to be the final section of *The Descent of Man*, but *The Descent* was already so long, Darwin decided to publish it separately.

[16] Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton University Press, Princeton, 1979); see pp. 186-190.

[17] J.S. Haldane, *The Philosophical Basis of Biology* (Doubleday, Doran and Co., New York, 1931), p. 13.

[18] Lloyd Morgan, a comparative psychologist of the late 1800s and early 1900s, has actually been misinterpreted. His 'canon,' as Michael T. Ghiselin points out, "could in fact be invoked on the other side... A higher faculty could explain more behavioral facts than a lower one". The immediate point, however, is that what Morgan was enunciating was an evolutionary principle, not a principle of simplicity or parsimony. His canon was anchored in the evolutionary fact that lower forms of intelligence developed before higher ones, and are thus represented to a greater degree in the evolutionary world than the latter. It is not then a question of "logical simplicity, but of theoretical probability" (Ghiselin). See Lloyd Morgan, *The Animal Mind* (Longmans, Green and Co., New York, 1930); Michel T. Ghiselin, "Lloyd Morgan's canon in evolutionary context", a response to Daniel C. Dennett's "Intentional systems in cognitive ethology: the 'panglossian paradigm' defended", *Behavioral and Brain Sciences* 6 (1983) pp. 362-363, quotes from p. 363.

[19] It might be pointed out that, however unenlightened Protagoras's (reinterpreted) gender-biased claim might appear today, his sexist generalization cannot be criticized: males unequivocally command worldviews and practices in present-day Western society, including the present-day worldview and practice of anthropocentrism.

[20] In their article, "The Great Ape Project" (in Raymond Corbey and Bert Theunissen

[eds], *Ape, Man, Apeman: Changing Views Since 1600* [Leiden University Press, Leiden, 1995], pp. 367-376), Paola Cavalieri and Peter Singer describe this aggrandizing gesture as an exclusionary form of humanism.

[21] See, for example, W.C. McGrew, *Chimpanzee Material Culture: Implications for Human Evolution* (Cambridge University Press, Cambridge, 1994); specifically, chapter 4 and McGrew's discussion of "the grooming-hand-clasp".

[22] XLI/24 (24 February 1995) pp. A8, A9, A14; quote from p. A8.

[23] *Ibid.*, p. A8.

[24] But see Albert A. Johnstone, *Rationalized Epistemology* (State University of New York Press, Albany, 1991), for considerable progress toward the resolution of such obdurate epistemological chestnuts.

[25] Wilfrid Sellars's "Philosophy and the scientific image of man" is a prime if extreme example. In this article, Sellars presents an unabashed argument for "Special Creation" (his phrase, his capitalizations). See his *Science, Perception and Reality* (Routledge & Kegan Paul, London, 1963), pp. 1-40.

[26] See, for example, Joseph Margolis, *Persons and Minds* (D. Reidel, Boston, 1978); Peter Carruthers, "Brute experience", *Journal of Philosophy* 86/5 (May 1989) pp. 258-269.

[27] Jonathan Bennett's assessment of rationality in honeybees is an excellent instance of this lack of an evolutionary perspective. See his *Rationality* (Routledge & Kegan Paul, London, 1964).

[28] See, for example, Robert J. Richards, *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (University of Chicago Press, Chicago, 1987).

[29] David Hume, *An Enquiry Concerning Human Understanding*, ed. Eric Steinberg (Hackett, Indianapolis, 1977), p. 71.

[30] Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (Princeton University Press, Princeton, 1981), pp. 34-35.

[31] *Ibid.*, pp. 46, 48.

[32] A reviewer of this article believed that there was a logical problem created by my using hunting as an example of how bodies cannot evolve in the absence of mental powers since hunting is an example of how bodies *do* require mental powers. Whether there is a logical problem or not turns to my mind on whether our concern is with evolutionary forms of life as we know them or whether our concern is with other *possible* forms of life. My concern is with actual evolutionary processes. Hence whether bodies do *or can* evolve in the absence of mental powers concerns actual living forms, i.e., cases in point. My claim is that given the nature of *constructional activity* as described in the text, that is, given the necessity of a discriminating, moment-by-moment, finely-attuned perceptual system to predator and prey alike, it is implausible to think that the particular bodies concerned could carry out predation or escape in the absence of mental powers. The question of bodies evolving in the absence of mental powers, then, is akin to a thought experiment on the basis of empirical matters of fact, to wit, is the life a particular predator (such as a lioness) or prey (such as a zebra) such that it could do without mental powers? My answer here, as with the constructional activities of beavers, is "no".

[33] See M. Kawai, "Newly-acquired pre-cultural behavior of the natural troop of Japanese monkeys on Koshima islet", *Primates* 6 (1965) pp. 1-30. For a brief review, see J. Itani and A. Nishimura, "The study of infrahuman culture in Japan" in E. Menzel (ed.), *Precultural Primate Behavior* (Karger Basel, New York, 1973), pp. 26-50.

[34] See Maxine Sheets-Johnstone, *The Roots of Thinking* (Temple University Press, Philadelphia, 1990). Four of the eight paleoanthropological case studies in this book were

published earlier: "On the conceptual origin of death", *Philosophy and Phenomenological Research* 47 (September 1986) pp. 31-58; "On the origin of language", *North Dakota Quarterly* 51 (Spring 1983) pp. 22-51; "Hominid bipedality and sexual selection theory", *Evolutionary Theory* 9 (July, 1989) pp. 57-70; "On the origin of counting", first presented at the American Association for the Advancement of Science meeting, San Francisco, 1984, subsequently requested for inclusion in *The Life of Symbols*, edited by M. LeCron Foster, anthropological linguist, and J. Botscharow, physical anthropologist (Westview Press, Boulder, 1990).

[35] The time-span, 40,000 years, might be debated depending on how current questioning of the relationship between *Homo sapiens sapiens* and Neanderthal hominids is ultimately resolved, i.e., are modern-day humans descendants of Neanderthals or did modern humans interbreed with and then replace Neanderthals? See B. Bower, "Neanderthals get an evolutionary face-lift", *Science News* 135/15 (April 15, 1989), p. 229 for a discussion of the recent controversy. See C.L. Brace and M.F. Ashley Montagu, *Man's Evolution* (Macmillan, New York, 1965) for a detailed and lucid discussion of the original and developing controversy over Neanderthals.

[36] Lest it be thought that such activities are reserved to primates alone, it should be noted that English tits began an entirely new practice - pecking open the waxboard lids of delivered milk bottles. The first-recorded instance of this activity was in 1921. Since then, the thirst-quenching practice spread both across species and geographically, from its original sighting in Southampton to Wales, Scotland, Ireland, Sweden, Denmark, and Holland. See James Fisher and R.A. Hinde, "The opening of milk bottles by birds" and "Further observations on the opening of milk bottles by birds", both in P.H. Klopfer and J.P. Hailman (eds), *The Function and Evolution of Behavior* (Addison-Wesley, Reading, MA, 1972), pp. 366-373 and 373-378, respectively.

[37] Robert S.O. Harding, "Meat-eating and hunting in baboons", in R.H. Tuttle (ed.), *Socioecology and Psychology of Primates* (Mouton, The Hague, 1975), p. 255. A *façon de parler*, it should be emphasized, is not dismissible as *merely* a way of speaking. *Façons de parler* are *façons de penser*, which means they have sturdily-positioned conceptual bases. See George Lakoff and Mark Johnson's *Metaphors We Live By* (University of Chicago Press, Chicago, 1980).

[38] A. Whiten and R.W. Byrne, "Tactical deception in primates", *Behavioral and Brain Sciences* 11 (1988) pp. 233-273; quotation, p. 237. The example comes from Diane Fossey. Following the example, Whiten and Byrne note that "similar examples in chimpanzees were offered by Plooij, Menzel, van Lawick-Goodall, and de Waal" (p. 237).

[39] With respect to cognitively-oriented philosophers, see, for example, Daniel C. Dennett, "Intentional systems". See also Dennett's commentary (titled "Why creative intelligence is hard to find") on A. Whiten and R.W. Byrne's "Tactical deception in primates", *Behavioral and Brain Sciences* 11 (1988) pp. 253. It might be noted that what is frequently overlooked in the skirmish between behaviorist and cognitivist is the fact that in the course of making a living, creatures behave in clever, off-beat ways that promote their well-being. And not only primates. One highly esteemed field study documented the fact that a female lioness, after a kill, pretended as if nothing had happened so that she would not have to share her bounty with anyone else. See George Schaller, *The Serengeti Lion* (University of Chicago Press, Chicago, 1972), p. 268.

[40] Martha Craven Nussbaum, *Aristotle's De Motu Animalium* (Princeton University Press, Princeton, 1978), pp. 163 and 164, respectively. It might be noted that were Aristotle suddenly alive today, he would undoubtedly be busy revising his original biological

treatises, studying animate life with as much zeal and thoroughness as originally, but enlightened now by the concept of phylogeny and its evidential foundations. Perhaps his *contemporary* interest in animate life would be philosophically infectious, as his ancient interest has not been.

[41] "The Great Ape Project".

[42] For an example of how a conceptualization of ourselves as primates sheds light on our human behavior, see Maxine Sheets-Johnstone, *The Roots of Power: Animate Form and Gendered Bodies* (Open Court Publishing, Chicago, 1994), in particular, chapters 1 and 2: "Optics of power and the power of optics" and "An evolutionary genealogy".

[43] In its original form, this essay was presented at the American Philosophical Association Pacific Division Meeting in San Francisco in March 1991 under the title "Taking evolution seriously". Under the same title, the essay was published in *American Philosophical Quarterly* 29/4 (October 1992) pp. 343-52. With a specific and fine focus on the Great Ape Project, I have rewritten portions of the original text or added to it, beginning with the addition of a subtitle.